

To: EIPC Planning Authorities, Staff, Stakeholders and Levitan & Associates

From: TO/TD Sector

Re: Gas-Electric System Interface Study Comments

Date: February 21, 2014

The Transmission Owners and Developers (TO/TD) Sector continue to appreciate the focus of the Gas-Electric System Interface Study (Gas-Electric Study) – the evaluation of the interaction between natural gas and electricity infrastructure from a planning perspective. The TO/TD Sector’s primary objective is to ensure that the results of the study can be utilized by regional stakeholder processes to consider potential fuel security risks. To achieve this goal, the study must, among other things, i) properly include electric infrastructure in the base case; ii) include accurate assumptions about the natural gas system infrastructure that will be in place over the five and ten year study horizon; iii) evaluate the frequency, duration and magnitude of any/all identified natural gas system constraints; and iv) combine an appropriate set of scenarios and sensitivities, as determined by stakeholders.

Generation and Transmission

The Non-DOE Funded Roll-up Report should generally be used to establish the baseline electric generation and transmission infrastructure for the Gas-Electric Study.¹ The Non-DOE Funded Roll-up Report has been developed with each Participating Planning Authority (PPA) and their stakeholders, and therefore appropriately captures the system conditions since the previous EIPC transmission study (Phase II) was complete. Moreover, the Non-DOE Funded Roll-up Report has the same five and ten year study horizons as the Gas-Electric Study (2018 and 2023), providing obvious synergies.

However, as currently drafted, the Non-DOE Funded Roll-up Report is deficient in that it does not include all projects meeting the inclusion criteria of the report through 2013. Specifically, Section 2.5 – Process for Future Transmission Project Inclusion – defines six PPA agreed to terms to describe the status of future transmission projects included in the report. Among them are “committed,” defined as obtaining some level of contractual obligation, regulatory approval, or approval in capital budgets; and “planned,” defined as completing the respective PPA’s planning process. Nevertheless, but not limited to, the transmission projects recently approved by the New York Public Service Commission are omitted

¹ Posted Final II EIPC Roll-up Report (February 14, 2014) available at:
http://www.eipconline.com/uploads/FINAL_EIPC_Roll-up_Report_Feb14-2014.pdf

from the Non-DOE Funded Roll-up Report.² Without the proper inclusion of these projects in the Gas-Electric Study, the results of the study may be misleading to regional stakeholders working to resolve any/all identified issues. Therefore, the TO/TD Sector respectfully request the inclusion of the transmission projects meeting the Section 2.5 criteria for inclusion in the Non-DOE Funded Roll-up Report, but omitted, be included the baseline electric transmission infrastructure of the Gas-Electric Study. Since the EIPC includes several PPAs, broad inclusion criteria for the EIPC region must first be established, and then individual PPAs can work with their respective stakeholders to ensure the most appropriate transmission projects are ultimately included.

Natural Gas Infrastructure Expansion

To produce credible conclusions, the Gas-Electric Study must also recognize that natural gas infrastructure expansions will be developed in order to reliably serve firm residential, commercial and industrial natural gas load. The materials and discussion to-date indicate that the study will include natural gas infrastructure (i.e., pipeline and storage facilities) already announced and/or in process. While this may be sufficient to meet the shorter, five year study horizon (2018), it is not necessarily sufficient to meet the demand for the longer ten year study horizon (2023). To meet the project firm natural gas system demands through 2023, the Gas-Electric Study should model (at least) two cases: i) pipeline capacity is increased to meet incremental increases in firm load; and ii) pipeline capacity is not increased to meet incremental increases in firm load. For example, for the former, the model could include general pro-rata increases in existing pipeline capacity, LNG and other storage facilities; while for the latter the model would assume projected firm gas load would be met through existing and/or assumed in-service pipeline capacity (i.e., that already included as announced and/or in process).

Scenarios

As detailed in the Gas-Electric Study's Scope of Work, Target II includes three scenarios, High, Low and Reference gas demand. These three scenarios should be supplemented to include a fourth scenario: "High Transmission Build-out." This scenario would evaluate the impact of electric transmission infrastructure on the needs for and use of natural gas-fired generation and natural gas infrastructure expansions. This is a distinctly different case from the High, Low and Reference gas demand cases because, rather than simply altering the quantity of natural gas needed to serve the

² In October 2013, the New York PSC approved three transmission projects, Ramapo to Rock Tavern, Staten Island Unbolting and Marcy South, collectively known as the TOTS projects. This approval makes these projects "committed" as defined by Section 2.5 of the Non-DOE Funded Roll-up Report.

electric system, it may show a spread/displacement of natural gas usage due to gas-fired generation needs and/or siting. While the specifics of this fourth scenario should continue to be developed through the PPAs and the stakeholder steering committee, it is important that the High Transmission Build-out scenario include transmission identified in the previous EIPC Phase II study scaled to meet the shorter study horizon and assumed construction and in-service dates (i.e., 2018 and 2023 rather than 2030).

Scenario Sensitivities

If the PPAs and Levitan & Associates conclude that the models for the Gas-Electric Study cannot be revised to include any/all electric transmission infrastructure meeting the Section 2.5 inclusion criteria of the Non-DOE Funded Roll-up Report in the base case (as discussed above), then the TO/TD Sector requests that these transmission projects be included in the model as an additional baseline for all scenarios and sensitivities being run. As previously mentioned, omitting these projects may produce misleading results. Also, as stated above, since the EIPC includes several PPAs, broad inclusion criteria for the region must first be established, and then individual PPAs can work with their respective stakeholders to ensure the most appropriate transmission projects are ultimately included.

Regarding the specific sensitivities of the High, Low and Reference gas demand cases, the TO/TD Sector understands that it will have additional time to review, comment and prioritize various options through the stakeholder steering committee. That said, the TO/TD Sector recommends:

- (1) High generator retirement sensitivity
- (2) Backup fuel inventory sensitivity (applicable to dual fuel units), high and low (e.g., 30-day backup fuel inventory, 5-day backup fuel inventory)
- (3) High penetration of renewable generation sensitivity
- (4) High electric load growth

Modeling

Participating in the stakeholder discussions to-date, the TO/TD Sector has four modeling recommendations.

- (1) The study must evaluate the frequency, duration and magnitude of any identified natural gas pipeline capacity shortfall. Individual regional stakeholders must have this information in order to shape and determine the appropriate solutions to resolve any/all identified issues – e.g., dual fuel capability or firm gas contracts. For example, a gas system

constraint that is projected to last only a few days a year may be best solved with dual fuel requirements. To that end, the TO/TD Sector recommends that the study models provide enough iteration to successfully evaluate frequency, duration and magnitude of capacity shortfalls. Evaluating only seasonal peaks (i.e., a summer electric peak and a winter electric peak) provides only a snapshot of system needs and will not provide sufficient information to inform regional stakeholder processes.

- (2) The study should quantify the impact of any identified natural gas system constraint, or contingency upon electric system reliability. As discussed to-date, the study will evaluate a generic dispatch of generation to meet projected electric demand to determine natural gas-fired generator's fuel needs. However, it should be recognized that the natural gas infrastructure needed to meet an economic generation dispatch may be greater than that needed to maintain electric system reliability (e.g., non-gas-fired generation may be available to meet projected electricity demand) if gas supplies are constrained.
- (3) To accurately represent a preferred electric generator dispatch, the price forecasts used must be sufficiently granular. When determining the expected electric generation dispatch, the study should include some representation of potential daily gas price volatility, especially under peak conditions.
- (4) The model should identify the major electric and gas system constraints within each PPA and disaggregate the analysis and results according to those constraints. The study should not simply report the sum total of available natural gas system capacity into and out of each PPA. Otherwise, the analysis will not provide a meaningful basis for regional stakeholder process to act at the conclusion of the study.

Target IV - Dual Fuel vs. Firm Gas

The TO/TD Sector believe two factors should be considered for this portion of the study, economic and reliability benefits. Dual fuel generator capability provides certain reliability benefits that firm pipeline contracts to supply gas-fired generator simply do not, that is, the ability to switch fuels if there is a natural gas pipeline contingency. Conversely, firm pipeline service provides for a fuel supply 365 days a year (assuming no contingencies) while fuel backup can only be relied upon for a limited number of days per year. This concept was discussed in more detail above, and drive the TO/TD Sector request for the proper evaluation of frequency, duration and magnitude of any/all identified gas system shortfalls. On the economic evaluation, building off of lessons learned from a previous evaluation

completed for the NYISO region and other regional studies, the TO/TD Sector provide the following recommendations.

- (1) The evaluation of firm service costs and benefits should recognize that basis differentials will fall after construction of a pipeline expansion projects. Assuming the basis differential remain as they have historically likely overstates the future differentials, therefore overstating the value of the firm pipeline capacity. Rather, it should be assumed that there will be some decrease in the basis differentials as a result of the planned expansion project.
- (2) Generators (and all firm shippers) have an opportunity to release their pipeline capacity (short and long-term capacity releases) on days (or partial days) when not needed. To capture the value of a capacity release, the basis differentials are likely a reasonable proxy.
- (3) There are alternatives to firm service from a pipeline. A popular alternative is delivered gas services that are firm for a limited number of days (e.g., peaking contracts). In addition, in many generation companies procure a portfolio of gas transportation and storage services, and use those services to provide gas to generators at multiple locations. Other generators employ a fuel manager that essentially performs the same service for multiple generation companies. These approaches represent a middle ground between firm and interruptible pipeline service. They are more costly than interruptible service and less costly than firm transportation. They are also less reliable than firm service but more reliable than interruptible. The study should evaluate their potential role in addressing constraints and contingencies, particularly in major load and supply zones. Information about the cost and structure of such services can be obtained from market participants.